

C¹ contact layer, the semiconductor structure having a first junction face between the semiconductor structure and the channel layer and having a second junction face between the semiconductor structure and the contact layer;

an ohmic electrode formed on the contact layer; and

a Schottky electrode formed on the semiconductor structure;

wherein at least one of the first junction face and the second junction face is an iso-type herterojunction; and

the semiconductor structure is composed of a single material.

C² 12. A field-effect semiconductor device according to claim 14, wherein the channel layer and the doped layer of the semiconductor structure at the first junction face are each n-type doped layers, and the contact layer and the doped layer of the semiconductor structure at the second junction face are each n-type doped layers.

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Please cancel claim 11 without prejudice of disclaimer of the subject matter contained therein.

Please add the following new claims 13-15:

C³ 13. A field-effect semiconductor device according to claim 1, wherein the first junction face between the channel layer and the semiconductor structure and the second junction face between the contact layer and the semiconductor structure are iso-type heterojunctions; the channel layer and the semiconductor structure at the first junction face are each formed of doped layers; the contact layer and the semiconductor structure at the second junction face are each formed of doped layers; and the semiconductor structure includes an undoped layer intermediate the doped layers thereof.

14. A field-effect semiconductor device according to claim 13, wherein the Schottky electrode is in contact with the undoped layer.

15. A field-effect semiconductor device comprising:
a channel layer;
a contact layer;
a semiconductor structure having an electron-affinity different from those of the channel layer and the contact layer, the semiconductor structure having at least one layer;
an ohmic electrode formed on the contact layer; and
a Schottky electrode formed on the semiconductor structure; wherein
the semiconductor structure is formed between the channel layer and the contact layer, and where a junction between said layers of the semiconductor device is a heterojunction, the junction is an iso-type heterojunction.
